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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,448	03/01/2002	Till Kaz	HOE-680	6674
20028	7590	03/03/2005	EXAMINER	
Lipsitz & McAllister, LLC 755 MAIN STREET MONROE, CT 06468			MAYES, MELVIN C	
			ART UNIT	PAPER NUMBER

1734

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/087,448

Applicant(s)

KAZ ET AL.

Examiner

Melvin Curtis Mayes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 47-92 is/are pending in the application.
- 4a) Of the above claim(s) 51-55, 59-79 and 86-92 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 47-50, 56-58 and 80-85 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/17/02, 12/16/02</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Election/Restrictions***

(1)

Applicant's election of Group I and Embodiment I in the reply filed on 11/5/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

However, according to the restriction requirement, the generic claims are Claim 47-49 and 80-85, and Embodiment I is carrier mesh (Claim 50) and function layer as a reaction layer (Claims 56-58). Thus the claims to be examined will be Claims 47-50, 56-58 and 80-85, not Claims 47-50, 56-58, 63-80, 82 and 85 as stated.

Elected Claims 47-50, 56-58 and 80-85 will be examined.

### ***Claim Rejections - 35 USC § 112***

(2)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

(3)

Claims 47-50, 56-58 and 80-85 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 47 claims "at least on **additional** function layer is produced." Does this mean that the "first layer" is also a function layer? This is not clear. Further, where is this additional function layer in relation to the first layer?

Claim 82 claims that a contact layer is sprayed onto the carrier. Where is this layer in relation to the rolled on first layer? According to the specification, the contact layer is sprayed onto the side of the carrier facing away from the reaction layer (first layer). Claim 82 could read "a contact layer is sprayed onto an electrically non-conductive carrier on its side facing away from the first layer.

Claim 83 recites the limitation "the barrier" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 82 should depend from Claim 81

Claim 84 recites the limitation "the contact layer" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 84 should depend from Claim 83

***Claim Rejections - 35 USC § 102 and 103***

(4)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(5)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

(6)

Claims 47, 50, 56-58, 80, 81 and 85 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fan et al. 6,627,035.

Fan et al. disclose a method of making a gas diffusion electrode comprising: applying a slurry comprising carbon black to a carbon cloth and passing the dried coated carbon cloth through rollers for rolling; and applying catalyst to the surface by spraying an ink comprising platinum-ruthenium or platinum black catalyst and NAFION ionomer; and attaching the gas diffusion membrane electrode to a polymer electrolyte membrane by lamination to form a membrane/electrode assembly (MEA) (col. 5, line 5 – col. 8, line 54).

Further, by passing the carbon black coated carbon cloth through rollers for rolling, a first layer (the coating) is obviously rolled onto a carrier (the carbon cloth), as claimed.

Further, by spraying an ink including NAFION ionomer, a barrier layer is obviously sprayed onto the carbon black coating (rolled-on reaction layer), as claimed in Claim 81.

(7)

Claims 47-49 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over SU 1694411 Abstract.

SU '411 Abstract discloses a method of making an electrode assembly comprising: using rollers 4 and heater 14 to apply polymer coating (first layer) to a first strip electrode (carrier); and using a sprayer to apply piezoceramic powder (additional function layer) to the coating; and connecting a second strip electrode

Further, by spraying piezoceramic powder on the polymer coating, a function layer is obviously produced by spraying for forming an electrode assembly, as claimed.

Further, by using roller and heater to apply the polymer coating, the application of the coating by rollers is obviously by one or more heated rollers, as claimed.

(8)

Claims 47, 48, 50 and 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Door 4,992,126 in view of Mitsuda et al. 4,603,060

Door discloses a method of making a current collector/electrode/membrane assembly comprising: providing a foundation layer (carrier) of carbon cloth (carrier mesh); applying a binder in solution or dispersion (first layer) to the foundation layer by a method well known in the art; and applying catalytically active particles such platinum to the binder-coated foundation layer by spraying (col. 2, line 30 – col. 5, line 32).

Mitsuda et al. teach that in manufacturing an electrode, the use of a reverse roll coating method is advantageous from the viewpoint of easy control of the thickness of layers (col. 2, lines 12-15).

It would have been obvious to one of ordinary skill in the art to have applied the binder to the carbon cloth by reverse roll coating, and thus rolled onto the carbon cloth, as taught by Mitsuda et al., for easy control of thickness of the layer.

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***Allowable Subject Matter***

(9)

Claims 82-84 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

(10)

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Swathirajan et al. teach that NAFION is used to provide a barrier layer.

(11)


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Curtis Mayes whose telephone number is 571-272-1234. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Melvin Curtis Mayes  
Primary Examiner  
Art Unit 1734

MCM  
March 2, 2005